AIR QUALITY and SMOKE MANAGEMENT

INTRODUCTION

Visibility and clean air are primary natural resource values in all NPS units. The protection of these resources must be given full consideration in fire management planning and operations.

In order to minimize negative smoke effects on the air resource, NPS units must comply with regulations and standards stated in this section. To do this, effects of smoke on air resources must be identified, current levels of pollutants established, levels of pollution for different fire management actions estimated, and effects on public health and enjoyment identified. NPS will then identify and pursue the best measures to control or mitigate smoke emissions.

Guidance in this section should be supplemented by that contained in Directors Orders -77 Natural Resources Management (Formally NPS-77 Natural Resources Management Guidelines). DO-77 is the definitive authority for direction on all air quality issues in National Park Areas. The Federal Government has ceded responsibility and authority to establish air quality standards and regulations to the States. Therefore all NPS areas are required to comply with state laws on these matters regardless of the type of legal jurisdiction that applies to other activities within the NPS unit.

Internal NPS unit programs for planning and monitoring air quality and smoke emissions must be augmented by vigorous participation in external (interagency) planning and regulatory actions as appropriate.

This chapter provides:

1. Legal requirements for air quality, which must be met by the fire management program.

2. Directions for establishing acceptable within-unit standards.

3. A statement of the need to monitor essential variables.

4. Recommendations for working with State and local regulatory boards/agencies.

5. Guidance on how and with whom to coordinate smoke management questions and practices.

6. Reference to the Environmental Protection Agency's (EPA) Interim Air Quality Policy on Wildland and Prescribed Fires. www.westar.org/proj_frame.html

LEGAL AUTHORITIES AND RESPONSIBILITIES

General Authorities for Air Resource Management: There are several acts of Congress, which relate to the National Park Service's general authority to manage air resources of national park units. These include the NPS Organic Act (http://www.law.cornell.edu/uscode/16/1.html)of 1916, the National Environmental Policy Act(http://www.law.cornell.edu/uscode/42/4321.html) of 1969, the Wilderness Act(http://www.law.cornell.edu/uscode/16/1131.html) of 1964, and other statutes. These laws, together with parks' enabling legislation and legislative histories, collectively provide NPS with opportunities to manage the air resource and protect other park resources and values that are dependent upon air quality.

Clean Air Act (http://www.law.cornell.edu/uscode/33/1251.html)(42 United States Code (USC) 7401 et seg.). The most explicit legislation pertaining to NPS is the Clean Air Act, as amended in 1992, which defines the authority and duty of the Service to protect park resources from air pollution-related effects and damage. The Clean Air Act establishes specific air quality management programs that provide special protection for many national parks and NPS wilderness areas.

Sections 160-169 of the Act establish a program to Prevent Significant Deterioration (PSD) of air quality in "clean air areas" of the country (i.e., attainment areas), which include many, if not most, national park units. Among the purposes of the PSD program are "to preserve, protect and enhance air quality in national parks, monuments, national seashores, and other areas of special national or regional natural, recreational, scenic or historic value."

The PSD program also establishes an area classification scheme, which determines the level of air quality protection, afforded these "clean air areas". All PSD areas were initially classified as Class I or Class II areas, with provisions for classification of some Class II areas to Class III. Class I areas, which include 48 national park units, receive the highest degree of protection. Congress provided additional protection for Class I areas in Section 169A of the Clean Air Act, which specifies a national goal of "remedying any existing and preventing any future **manmade** visibility impairment" in these areas.

NPS also was provided the opportunity to identify scenic vistas associated with Class I areas that are important to visitors' enjoyment, even though these views may extend beyond NPS unit boundaries. Some states have included the NPS identified vistas in their air pollution control regulations and will enforce protection of these important views. In addition, these lists of vistas are incorporated into park planning documents as unit-related visual resources that may

warrant protection from the effects of air pollution, including smoke from fires, especially during times of high visitor use.

The EPA Interim Air Quality Policy on Wildand and Prescribed Fire provides general direction for federal land managers. This direction is stated as "Public land managers have the responsibility to participate with the other stakeholders and air quality managers in developing State Implementation Plans (SIP). Public land managers, as experts in what is needed to meet land use and other environmental objectives, need to provide information on the areas that are to be treated with fire, air pollutant emissions estimates, and assistance in developing programs to track emission, monitor air quality and visibility, and mitigate air quality impacts. Land Managers of mandatory Class I Federal areas must participate in the development of SIPS's for regional haze and visibility impairment. Congress gave land managers a key consulting role in the administration of visibility protection and "affirmative responsibility to protect air quality related values (including visibility) in mandatory Class I Federal areas." (See section 165 of the Clean Air Act). (http://www.law.cornell.edu/uscode/33/1251.html)

NPS Compliance Responsibilities: NPS fire management activities which result in the discharge of air pollutants (e.g., smoke, carbon monoxide, and other pollutants from fires) are subject to, and must comply with, all applicable Federal, state, interstate, and local air pollution control requirements, as specified by Section 118 of the Clean Air Act, as amended (42 USC 7418). These requirements are the same substantive, procedural, and administrative requirements that apply to a private person or other non-governmental entity.

It was not a primary intent of the Clean Air Act to manage the impacts of natural sources of impairment. Fire plays a principle, and in some cases a dominant role in maintaining the integrity of NPS unit resources. The inevitable smoke must be accepted as a by-product of management that serves to protect the functioning of fire in these ecosystems. Since fires are not point sources, but rather tend to be spatially distributed singular events; temporary impacts to visibility and visitor enjoyment must be recognized, expected, and managed. This may include temporary closures or warnings as acceptable during the progress of beneficial, ecologically essential fires. Interpretive programs should include clear and reasonable explanations for such necessary practices.

All NPS units, including those with exclusive jurisdiction, are required to obtain necessary permits for prescribed fires, comply with the National Ambient Air Quality Standards (NAAQS) (http://www.epa.gov/oar/primer) both inside and outside unit boundaries, and protect visibility in Congressionally-mandated Class I unit areas. These and other potential requirements are discussed further in this section and in more detail in the Air Quality Chapter of DO-77.

There may be additional state and/or local air quality rules and regulations that must also be complied with if the jurisdictional boundaries of these agencies include lands managed by the NPS or lands that may be affected by activities occurring on NPS lands.

Additional information on the Clean Air Act requirements concerning conformity, visibility/haze requirements, and prevention of significant deterioration can be found in the EPA Interim Air Quality Policy on Wildland and Prescribed Fires.(http://www.westar.org/proj_frame.html)

Such additional requirements may include:

State or local ambient air quality standards that are more stringent than the NAAQS.

1. Ambient standards for pollutants such as particulate matter smaller than 2.5 microns in size (PM-2.5). This is a size range of particulate that could significantly affect management of smoke from wildland fires.

2. Protection of state-identified scenic views that may or may not be associated with NPS areas.

3. Possible quantitative standards for protection of visibility in Class I areas, such as specified minimum acceptable levels of visual range or contrast that will be allowed.

Compliance with these various requirements may necessitate the use of computer simulation models or even instrument monitoring in the field, as specified by the regulatory authority.

An additional concern is whether smoke emissions from prescribed fires are considered to be "natural" or "manmade" emissions. At present, there is currently no national policy on this issue with respect to planned ignitions. Without a well-defined national policy on this issue, however, state and local air quality agencies may reasonably interpret air pollution caused by prescribed fires to come within the scope the Clean Air Act.
(http://www.law.cornell.edu/uscode/42/7401.html) Failure to comply with any applicable requirements, such as open burning permit requirements, could subject the NPS to fines or other sanctions.

INTRA- AND INTERAGENCY COORDINATION

A good working relationship between the NPS and interstate, state, and local air quality officials and neighboring land management agencies should help assure that both air quality control and fire management objectives are met with the least amount of conflict.

State Agency Coordination: Coordination with the state is required during the development of fire management plans. NPS unit staff may want to first consult with the regional air quality coordinator on the proper procedures for obtaining coordination with the state or states in which the NPS unit is located.

The regional air quality coordinator may handle the coordination activities with the state, or may recommend that the NPS unit staff work directly with the state. If more than one NPS unit with fire management concerns is located in a state, it may be advantageous for each NPS unit to coordinate with local representatives of the state agency while the regional air quality coordinator maintains coordination with the central state office. In states where more than one state agency is involved, e.g. one for smoke management and one for air quality, it is important that there be adequate coordination with each.

Following initial consultation with the state agency, procedures for compliance with state air quality regulations should be drafted for the fire management plan. A copy of the draft procedures should be supplied to the state agency for review prior to approval of the fire management plan.

The NPS unit should continue to coordinate with the state during implementation of the fire management plan to ensure compliance with state regulations. It may be helpful to invite selected state air quality officials to visit the NPS unit when a prescribed fire or wildland fire is in progress.

In some states a memorandum of understanding with the state may be appropriate. Such memoranda should clearly specify any procedural and substantive requirements that must be met by the NPS in conducting its fire management programs. Assistance in writing such agreements may be sought from the regional office and the regional solicitor, and should include consultation with the NPS Air Quality Division.

When an NPS unit is notified by the state that an air pollution violation has occurred, the NPS unit will work with the state and provide them with a compliance plan and schedule. The regional office air quality coordinator should be notified, and the NPS Air Quality Division should be contacted if technical assistance is required.

Air Quality Division (AQD) Coordination: When the draft fire management plan is sent to the regional office for review, smoke management portions of the plan will be sent to the AQD for review and comment. Comments from the AQD will be returned to the regional office and will be forwarded to the NPS unit along with regional comments. The regional air quality coordinator will also review the plan's smoke management portion and comments from AQD before they are returned to the NPS unit. A copy of the air quality section(s) of the approved fire management plan will be sent to the AQD.

Interagency and Regional Coordination: The regional air quality coordinator or a representative from the NPS unit will usually be the agency representative for the development of interagency or regional smoke management plans. When a decision is made to develop an interagency or regional plan, the agency representative will inform AQD and NPS Fire

Management Program Center, and an agreement will be reached on the degree of their subsequent involvement. An agreement should also be reached between the NPS unit and regional director's office on the extent of involvement for each.

Public Coordination: Educating the public on the values of both clean air and the natural process of fire is important to increasing public understanding and support of NPS unit fire management programs. Interpretation in NPS unit is the primary method for providing this education. The public should be aware that the NPS is striving to protect air resources in the unit from human-caused sources of impairment while allowing the natural process of fire and smoke to proceed to the fullest extent possible.

Shortly before prescribed fires are anticipated and during the management of wildland fires, information will be made available to state contacts, NPS unit visitors, local citizenry, and the press about what is happening in the NPS unit. On-site information can also be used to alleviate visitor concerns about the apparent destruction of NPS unit resources by fire or impairment of views due to temporary smoke.

NPS UNIT RESPONSIBILITIES

In addition to the influence of smoke on health and safety, influences on the visual resource must also be considered. Many NPS units were established and are visited because of their views.

Although it is recognized that fire, and therefore smoke, is a natural process, the presence of chronic or severe episodes of smoke may impinge unacceptably upon the NPS unit's visual resources.

Each NPS unit is required to develop methods to manage smoke from prescribed fires and, to the extent possible, that generated by wildland fires. Air quality management objectives must be set and prescriptions and techniques must be developed to meet these objectives. These objectives should appear in all project implementation plans.

In some areas, local air quality offices may have already established visibility standards. Smoke management should be discussed with the local air quality office and the regional air quality coordinator.

NPS unit should identify the key vistas and smoke sensitive areas (highways, campgrounds, developments) for which smoke management objectives will be created. Some views may have been identified during the integral vista survey, which was conducted in many NPS units several years ago

Surveys of visitor reaction to visibility impairment may be conducted to assist the NPS unit in identification of visual resources. The Air Quality Division provides assistance in design and implementation. Certain views may be so popular that virtually no impairment by smoke would be tolerated. Such sensitive areas must be identified before air quality management objectives are developed and a prescribed fire program is implemented.

Air quality management objectives must be quantifiable and measurable at designated points in the NPS unit. Objectives could include maintenance of acceptable visual range, allowable loss of detail or clarity of a key feature, the number of consecutive days in which the visual range is attenuated below the acceptable standard, consecutive nights with the odor of smoke in a developed area, or maintenance of acceptable visibility on highways.

Techniques and prescribed conditions which will be used to achieve smoke management objectives are defined in a similar fashion to the way techniques and burning prescriptions are defined for achievement of fire management objectives. Critical mixing heights, transport wind speeds, and wind directions should be stated. Smoke management techniques should include an appropriate combination of dilution of particulate matter, avoidance of targets, and emission reduction. The RX-450, Smoke Management Course, provides instruction in these techniques. Prescribed Fire Plans and Wildland Fire Implementation Plans may define actions taken to minimize emissions. These actions may be discussed with the local air quality regulatory office and regional office air quality coordinator.

Smoke Management sections of the Fire Management Plan and project implementation plans will describe personnel and methods to be used to monitor and measure the degree to which objectives have been met. The presence or absence of prescribed conditions for smoke management will also be recorded.

Prescribed Fire Plans and Wildland Fire Implementation Plans will describe holding actions that may be used to keep the fire within prescription for air quality objectives.

Examples:

1. Use firing crews to ignite smoldering fuels so that the fuels burn with flaming rather than with glowing combustion.

2. Construct fire lines to halt fire spread.

3. Mop-up smoldering heavy fuels until conditions improve for smoke dispersion, at which time the fire may be reignited.

4. Use hoselays and pumps to wet fuels to extinguish all or a portion of the fire front, with possible subsequent reignition under prescribed dispersal conditions.

All such actions must be approved by the superintendent as part of a Prescribed Fire Plan or Wildland Fire Implementation Plan and may be funded with fire use funds.

Some wildland fires can be reasonably expected to significantly affect air quality in and around the NPS unit. Large wildland fires may affect the number of burning permits which can be issued by the agency, and therefore affect the fire management accomplishments of neighboring land management agencies.